UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,239	06/09/2006	Nobuaki Matsuoka	292337US26PCT	1964

22850 7590 07/23/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
FORD, NATHAN K	
ART UNIT	PAPER NUMBER
1792	

NOTIFICATION DATE	DELIVERY MODE
07/23/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/582,239	MATSUOKA ET AL.	
	Examiner	Art Unit	
	NATHAN K. FORD	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/10/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Interpretation

The applicant's claim language has invoked USC 112, sixth paragraph.

The *first transfer means* (claim 1) will be interpreted as being inclusive of a transfer device capable of movement along the x-, y-, and z-directions and rotatable about a vertical axis according to paragraph forty-two of the applicant's specification.

The *second transfer means* will be interpreted as being inclusive of a transfer device having two arms, capable of movement along a guide rail, moveable vertically and horizontally, and rotatable about a vertical axis according to paragraph forty-four of the applicant's specification.

The *third transfer means* will be interpreted as being inclusive of a transfer device capable of vertical and horizontal movement and rotatable about a vertical axis according to paragraph fifty of the applicant's specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 recites the limitation of "the utility lines." As claim 17 is dependent upon claims 4 and 16, neither of which recites the presence of utility lines, there is insufficient antecedent basis for this limitation in the claim. For purposes of further examination, claim 17 will be interpreted as being dependent upon claim 13, which properly introduces "a plurality of utility lines."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 4-6, 8, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma, US 6,377,329, in view of Kimura et al., US 6,439,822.

Claims 1-2, 4-5, 8: Takekuma teaches the following (Fig. 5):

- A carrier block (10) including:
  - A carrier placement portion (21);
  - A substrate carrier (C);
  - A first transfer means (22);
- A second transfer means (61) provided adjacent to the carrier block for transferring the substrate along a transfer path (7, 34-43);
- A first delivery stage (62) capable of delivering a substrate between the first and second transfer means (7, 55-67; Fig. 9);
- A plurality of detachable process blocks (100, 300), each comprising (5, 62-67):
  - A heating unit (23) (9, 18-40; Fig. 6);
  - A third transferring means (30, 40) (Fig. 5);
  - A second delivery stage (EXT) (Fig. 6);
- A light exposure machine (200) (8, 40-45);
- An interface portion (51) located between the transfer path and the light exposure machine;
- Wherein the transfer path extends from the interface portion to the carrier block;
  - Wherein the process blocks are arranged on only one side of the transfer path.

The processing blocks of Takekuma comprise multiple processing chambers; however, within each block, these chambers are either exclusively developing units (5) or coating units (3) (Fig. 17). Nevertheless, it would be within the capacity of one of ordinary skill to include both coating and developing units within the same processing block. For example, Kimura discloses a modular processing apparatus wherein the processing blocks (G1, G2) are configured to accommodate both processing and developing units to facilitate easy maintenance of the system, thereby demonstrating the art-recognized suitability of the arrangement (8, 61ff; Fig. 10). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the processing blocks of Takekuma to accommodate both coating and developing units to achieve the predictable result of substrate processing and to enable facile system maintenance.

Regarding the mobility of the transfer means: The first and third transfer means recited by Takekuma have the capability of three-axis motion and rotary capacity (6, 10-18). However, the second transfer means is moveable only in the y-direction. Nevertheless, merely because the inventor did not configure the second transfer mechanism with the mobility of the first and third mechanisms does not mean that it would be non-obvious to do so. The disclosure of the mobility of the first and third transfer mechanisms provides sufficient motivation for one of ordinary skill to configure the second with similar mobility to achieve the predictable result of increasing the capability and efficiency of substrate transfer.

Regarding the sequencing of processing operations: A recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations (*Ex parte Masham*, 2 USPQ2d 1647). Takekuma discloses a controller (90) capable of processing a substrate according to the applicant's claimed sequence.

Claim 6: A recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations. The apparatus is capable of applying a precursor to a substrate.

Claim 7: Figures 15 and 17 of Takekuma depict two process blocks (100, 300) of identical dimension. Further, it has been held that the configuration of the claimed element is a matter of choice which a person of ordinary skill would have found obvious (*In re Dailey*, 149 USPQ 47). It would have been obvious to one of ordinary skill to configure two process blocks disposed within the same modular tool to have identical heights, lengths, and widths.

Claim 11: Any portion of the carrier block, which is contiguous to a process block, can be considered a positioning member.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma in view of Kimura and Masayki et al., JP 10-012528, wherein machine translation was used.

It has been held that rearranging the parts of an invention involves only routine skill in the art (In *re Japikse*, 86 USPQ 70). Nevertheless, Figure 1 of Masayki delineates the claimed arrangement, thereby demonstrating the suitability of the arrangement. It would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the interface of Takekuma as taught by Figure 1 of Masayki to achieve the predictable result of substrate processing.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma and Kimura in view of Slocum et al., US 5,733,024, and Cakmakci, US 4,836,968.

Takekuma does not teach the hinged attachment between chambers. However, it is well-known in the art to configure the chambers which compose a modular system as attachable/detachable to facilitate cleaning and maintenance, as taught by Slocum, for instance (1, 50-55). Slocum secures the chambers via kinematic couplings but does not teach a hinged attachment. Nevertheless, an express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious (*In re Fout*, 675 F.2d 297, 213 USPQ 532). Cakmakci articulates the general principle of attaching two chambers with a hinge to enable rotation about an axis, thereby demonstrating the equivalence of hinged attachments for the purpose connecting two discrete structures. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to secure the attachment of Takekuma's chamber portions and blocks through the use of a hinge.

Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma and Kimura in view of Slocum.

Takekuma is silent regarding the presence of guide and positioning members. Slocum discloses a modular system wherein each process block is secured within a fixed reference frame via alignment elements (16), positioning elements (90), and attachment elements (89) (2, 43ff; Fig. 12). Any of these elements are capable of functioning as either a "connection end," "guide member," or a "positioning member." It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate guide and positioning members within the apparatus of Takekuma to configure the processing blocks as dimensionally stable and within a fixed reference frame (1, 43-48, 6, 10-30).

Claims 13-15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takekuma and Kimura in view of Lei et al., US 6,277,199.

Although Takekuma discloses the use of electrical and signal lines branched to each process block, the reference is silent regarding the presence of utility lines that are capable of transporting a gas or liquid. Introduced in supplementation is Lei, who teaches that it is well-known in the art to provide process blocks with detachable and branched utility lines capable of transporting liquids (1, 23-36; 1, 59ff, 2, 60-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate electrical and liquid supply lines within the

apparatus of Takekuma to achieve the predictable result of efficiently providing processing fluids essential for substrate fabrication to process chambers.

Regarding the specific fluid type which is provided by the utility lines: A recitation concerning the manner in which a claimed apparatus is to be employed does not differentiate the apparatus from prior art satisfying the claimed structural limitations. Lei's utility lines are capable of conveying the applicant's claimed fluids.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan K. Ford whose telephone number is 571-270-1880. The examiner can normally be reached on M-F, 8:30-5:00 EDT. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland, can be reached at 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/N. K. F./

Examiner, Art Unit 1792

/Karla Moore/

Primary Examiner, Art Unit 1792